COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
System Voltage Low	P0562	Out of Range High	System Voltage	IG voltage < 9 V	(Ignition ON CAN Bus Off failure / CAN No EMS failure = Not failure condition Engine Speed Sensor Revolution = Not failure condition Engine Speed Sensor Revolution > 400 rpm) OR (Ignition ON. Input Speed Sensor Revolution = Not failure condition Input Speed Sensor Revolution > 400 rpm)	9 V <= Battery Voltage <= 16 V for 20 sec continuously	Detection : 1 sec continuously Decision : 20 failures	Type B Trips: 2 MIL: Yes
System Voltage High	P0563	Out of Range Low	System Voltage	IG voltage > 18 V	(Ignition ON CAN Bus Off failure / CAN No EMS failure = Not failure condition Engine Speed Sensor Revolution = Not failure condition Engine Speed Sensor Revolution > 400 rpm) OR (Ignition ON. Input Speed Sensor Revolution = Not failure condition Input Speed Sensor Revolution > 400 rpm)	9 V <= Battery Voltage <= 16 V for 20 sec continuously	Detection : 1 sec continuously Decision : 20 failures	Type B Trips: 2 MIL: Yes
Transmission Control Module (TCM) Read Only Memory (ROM)	P0601	To detect that the value of check sum calculations(stored in ROM memory) executed after Ignition switch is in crank or run position	If there are a difference from the correct check sum value stored in flash ROM, the second calculation is made differences twice detection is criteria	1 time	none	To detect the first check sum calculation executed after initialization is correct	Decision : 1 failure	Type A Trips: 1 MIL: Yes
Transmission Control Module (TCM) Random Access Memory (RAM)	P0604	To detect that the value of RAM memory executed after Ignition switch is in crank or run position	TCM cannot carry out all RAM from Step 1 to Step 4 in initialize routine.	TCM cannot carry out all RAM from Step 1 to Step 4 in initialize routine. -Step 1: TCM write 0x5A5A5A5A data in the RAM. -Step 2: TCM read 0x5A5A5A5A data from the RAM.	none	TCM can carry out all RAM from Step 1 to Step 4 in initialize routine..	Decision :	Type B Trips: 2 MIL: Yes

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
				-Step 3: TCM write 0xA5A5A5A5 data in the RAM. -Step 4: TCM read 0xA5A5A5A5 data from the RAM.			1 failure	
Transmission Range Sensor Circuit Malfunction (No Signal)	P0705	To detect no signal of transmission range sensor circuit.	Transmission Range Sensor Circuit	no signal	DS_ACTIVE_EG**(*1)** Not in emergency mode**(see the attachment#3)** Vehicle Speed	TRUE >= 30 km/h	. Detection 2 seconds continuously. Decision : 28 seconds continuously	Type B Trips: 2 MIL: Yes
Transmission Range Sensor Circuit Malfunction (Short)	P0706	To detect 2 or more signals of transmission range sensor circuit	transmission range sensor circuit	2 or more signals	DS_ACTIVE_EG**(*1)** Engine Speed Ignition switch is in crank or run position Not in emergency mode**(see the attachment#3)** No active DTCs	TRUE > 400rpm 2.0 sec continuously. U0401(Engine Speed Signal Error) U0001 , U0100	2 seconds continuously (per 1 failure) 5 failures	Type B Trips: 2 MIL: Yes
Transmission Fluid Temperature (TFT) Sensor Performance	P0711	To detect Transmission Fluid Temperature (TFT) Sensor circuit by Comparision of Sensor Voltage and Input A/D value.	Comparision of Sensor Voltage and Input A/D value	Refer to Flow chart of the attachment#1.	DS_ACTIVE_EG**(*1)** Ignition switch is in crank or run position Input A/D value of TFT No active DTCs Not in emergency mode**(see the attachment#3)**	TRUE 2.0 sec continuously. 10 (200 deg.C) <= Input A/D value <= 1000 (43 deg.C) P0705, P0706	1 failure (Refer to Flow chart of the attachment#1 For details.)	Type A Trips: 1 MIL: Yes
Transmission Fluid Temperature (TFT) Sensor Circuit Low Voltage	P0712	This DTC detects a short to ground in Transmission Fluid Temperature (TFT) Sensor circuit	Input A/D value of TFT	< 10 (0.05V)	DS_ACTIVE_EG**(*1)** Not in emergency mode**(see the attachment#3)** No active DTCs	TRUE U0001 , U0100	10 seconds continuously(per 1 failure) 30 failures	Type A Trips: 1 MIL: Yes

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
Transmission Fluid Temperature (TFT) Sensor Circuit High Voltage	P0713	This DTC detects a short to high or open in Transmission Fluid Temperature (TFT) Sensor circuit	Input A/D value of TFT	> 1000 (4.89V)	DS_ACTIVE_EG**(*1)** Not in emergency mode**(see the attachment#3)** Drive time (as the following 3 conditions) Transmission range sensor No active DTCs Output Shaft Speed Engine coolant temperature No active DTC	TRUE > 10 min Except for P or N range for 10min P0705, P0706 P0722 >= 600 rpm for 10min >= 50 deg.C U0401(Engine Coolant Temperature Signal Error)	1 seconds continuously(per 1 failure) 12 failures	Type A Trips: 1 MIL: Yes
Input Speed Sensor	P0717	To detect Input shaft speed sensor circuit	The pulse of Input shaft speed sensor (while TCM detect 4 pulses of output shaft speed sensor)	No pulse	DS_ACTIVE_EG**(*1)** Not in emergency mode**(see the attachment#3)** Time of selection lever position change from P,R or N range to others Vehicle Speed calculated by output Speed sensor >= 66km/h or Oil temperature>=20deg.C No active DTCs Output Shaft Speed	TRUE >=10sec >=2.5sec P0722 P0705, P0706 >= 600 rpm	500 failures (1 failure is no pulse of input shaft speed sensor while TCM detect 4pulses of output shaft speed sensor.)	Type A Trips: 1 MIL: Yes
Output Speed Sensor	P0722	To detect Output shaft speed sensor circuit	The pulse of Output shaft speed sensor (while TCM detect 178 pulses of input shaft speed sensor.)	No pulse	DS_ACTIVE_EG**(*1)** Not in emergency mode**(see the attachment#3)** Time of selection lever position change from P,R or N range to others Vehicle Speed calculated by input Speed sensor >= 66km/h or Oil temperature>=20deg.C No active DTCs	TRUE >=10sec >=2.5sec P0717 P0705, P0706	500 failures (1 failure is no pulse of output shaft speed sensor while TCM detect 178pulses of input shaft speed sensor.)	Type A Trips: 1 MIL: Yes

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Output Shaft Speed calculated by input shaft speed	>= 300 rpm		
Torque Converter Clutch (TCC) System –Stuck OFF	P0741	Determines if the TCC System is stuck off within the normal operating range	Comparison of Shift Solenoid Voltage and Input/Ouput shaft speed calculation.		Refer to CONDITON OF TCC SOLENOID STUCK OFF/ON of **attachment#2.2** DS_ACTIVE_EG**(*1)** Battery voltage Not in emergency mode**(see the attachment#3)** Time after selection lever position from P,R,N,2,L to D Time after gear changed TCC Solenoid Time after TCC Solenoid frome Disabled to Enabled. Engine Coolant Temperature Transmission Oil Temperature Accelerator Effective Position No active DTCs	 TRUE 10.5 V < Battery voltage < 18 V 4.0sec 2.0 sec Enabled 2.0 sec >= 60 deg >= 20 deg >=10% P0717, P0722 P0705, P0706 U0401(Accelerator Effective Position Signal Error, Engine Coolant Temp Signal Error, Engine Torque Signal Error) P0973, P0974 P0976, P0977 P0962, P0963 P2769, P2770 P0711, P0712, P0713	1 failure (Refer to CONDITON OF TCC SOLENOID STUCK OFF/ON of attachment#2.2)	Type B Trips: 2 MIL: Yes
Torque Converter Clutch (TCC) System –Stuck ON	P0742				Refer to CONDITON OF TCC SOLENOID STUCK OFF/ON of attachment#2.2 DS_ACTIVE_EG**(*1)** Battery voltage Not in emergency mode**(see the attachment#3)** Time after selection lever position from P,R,N,2,L to D Time after gear changed	 TRUE 10.5 V < Battery voltage < 18 V 4.0sec 2.0 sec	1 failure (Refer to CONDITON OF TCC SOLENOID STUCK OFF/ON of attachment#2.2)	Type B Trips: 2 MIL: Yes

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
		Determines if the TCC System is stuck on within the normal operating range	Comparison of Shift Solenoid Voltage and Input/Ouput shaft speed calculation.	Refer to CONDITON OF TCC SOLENOID STUCK OFF/ON of attachment#2.2	TCC Solenoid Time after TCC Solenoid frome Enabled to Disabled. Engine Coolant Temperature Transmission Oil Temperature Accelerator Effective Position No active DTCs	Disabled 2.0 sec >= 60 deg >= 20 deg >=10% P0717, P0722 P0705, P0706 U0401(Accelerator Effective Position Signal Error, Engine Coolant Temp Signal Error, Engine Torque Signal Error) P0973, P0974 P0976, P0977 P0962, P0963 P2769, P2770 P0711, P0712, P0713		
Shift Solenoid (SS) 1 Performance –Stuck OFF	P0751	Determines if the Shift Solenoid 1 is stuck off within the normal operating range	Compare Shift Solenoid Output and Input/Output Speed Revolution calculation	Refer to CONDITION OF SHIFT SOLENOID MALFUNCTION of Attachment #2.1	Refer to CONDITION OF SHIFT SOLENOID MALFUNCTION of **attachment#2.1** DS_ACTIVE_EG**(*1)** Battery voltage Not in emergency mode**(see the attachment#3)** Time after selection lever position from P,R,N,2,L to D Time after gear changed Vehicle Speed Engine Coolant Temperature Transmission Oil Temperature No active DTCs	TRUE 10.5 V < Battery voltage < 18 V >=5.0sec >=2.0 sec >= 20 km/h >= 60 deg >= 20 deg P0717, P0722 P0705, P0706 U0401(Accelerator Effective Position Signal Error, Engine Coolant Temp Signal Error) P0973, P0974 P0976, P0977 P0962, P0963 P0711, P0712, P0713	1 failure (Refer to CONDITION OF SHIFT SOLENOID MALFUNCTION of attachment#2.1)	Type B Trips: 2 MIL: Yes

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
Shift Solenoid (SS) 1 Performance –Stuck ON	P0752	Determines if the Shift Solenoid 1 is stuck on within the normal operating range	Compare Shift Solenoid Output and Input/Output Speed Revolution calculation	Refer to CONDITION OF SHIFT SOLENOID MALFUNCTION of Attachment #2.1	Refer to CONDITION OF SHIFT SOLENOID MALFUNCTION of **attachment#2.1** DS_ACTIVE_EG**(*1)** Battery voltage Not in emergency mode**(see the attachment#3)** Time after selection lever position from P,R,N,2,L to D Time after gear changed Vehicle Speed Engine Coolant Temperature Transmission Oil Temperature No active DTCs	TRUE 10.5 V < Battery voltage < 18 V >= 5.0sec >= 2.0 sec >= 20 km/h >= 60 deg >= 20 deg P0717, P0722 P0705, P0706 U0401(Accelerator Effective Position Signal Error, Engine Coolant Temp Signal Error) P0973, P0974 P0976, P0977 P0962, P0963 P0711, P0712, P0713	1 failure (Refer to CONDITION OF SHIFT SOLENOID MALFUNCTION of attachment#2.1)	Type B Trips: 2 MIL: Yes
Shift Solenoid (SS) 2 Performance –Stuck OFF	P0756	Determines if the Shift Solenoid 2 is stuck off within the normal operating range	Shift Solenoid stuck OFF	Refer to CONDITION OF SHIFT SOLENOID MALFUNCTION of attachment#2.1	Refer to CONDITION OF SHIFT SOLENOID MALFUNCTION of **attachment#2.1** DS_ACTIVE_EG**(*1)** Battery voltage Not in emergency mode**(see the attachment#3)** Time after selection lever position from P,R,N,2,L to D Time after gear changed Vehicle Speed Engine Coolant Temperature Transmission Oil Temperature No active DTCs	TRUE 10.5 V < Battery voltage < 18 V 5.0sec 2.0 sec >= 20 km/h >= 60 deg >= 20 deg P0717, P0722 P0705, P0706	1 failure (Refer to CONDITION OF SHIFT SOLENOID MALFUNCTION of attachment#2.1)	Type B Trips: 2 MIL: Yes

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
						U0401(Accelerator Effective Position Signal Error, Engine Coolant Temp Signal Error) P0973, P0974 P0976, P0977 P0962, P0963 P0711, P0712, P0713		
Shift Solenoid (SS) 2 Performance –Stuck ON	P0757	Determines if the Shift Solenoid 2 is stuck on within the normal operating range	Shift Solenoid stuck ON	Refer to CONDITION OF SHIFT SOLENOID MALFUNCTION of attachment#2.1	Refer to CONDITION OF SHIFT SOLENOID MALFUNCTION of **attachment#2.1** DS_ACTIVE_EG**(*1)** Battery voltage Not in emergency mode**(see the attachment#3)** Time after selection lever position from P,R,N,2,L to D Time after gear changed Vehicle Speed Engine Coolant Temperature Transmission Oil Temperature No active DTCs	TRUE 10.5 V < Battery voltage < 18 V 5.0sec 2.0 sec >= 20 km/h >= 60 deg >= 20 deg P0717, P0722 P0705, P0706 U0401(Accelerator Effective Position Signal Error, Engine Coolant Temp Signal Error) P0973, P0974 P0976, P0977 P0962, P0963 P0711, P0712, P0713	1 failure (Refer to CONDITION OF SHIFT SOLENOID MALFUNCTION of attachment#2.1)	Type B Trips: 2 MIL: Yes
Timing Solenoid (ST) Electrical (GND short)	P0787	This DTC detects a short to ground in the Timing Solenoid circuit.	Timing Solenoid Voltage (when TCM command “ON” signal (12V) to timing solenoid.)	=0V (“OFF” signal)	DS_ACTIVE_V**(*2)** Not in emergency mode**(see the attachment#3)** Time after Shift solenoid output changed	TRUE 25ms	3 failures 500ms continuously(per 1 failure)	Type A Trips: 1 MIL: Yes
Timing Solenoid (ST) Electrical (open, IG short)	P0788	This DTC detects a short to high or open in the Timing Solenoid	Timing Solenoid Voltage (when TCM command “OFF” signal (0V)	=12V (“ON” signal)	DS_ACTIVE_V**(*2)**	TRUE	3 failures 500ms continuously(per 1 failure)	Type A Trips: 1 MIL: Yes

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
		circuit.	to timing solenoid.)		Not in emergency mode**(see the attachment#3)** Time after Shift solenoid output changed	25ms		
Pressure Control (PC) Solenoid Control Circuit Low Voltage	P0962	This DTC detects a short to ground or open in the Pressure Control Solenoid circuit.	Input A/D value of Pressure Control Solenoid	< 68(0.018V)	DS_ACTIVE_V**(*2)** Not in emergency mode**(see the attachment#3)**	TRUE	25 failures 500ms continuously(per 1 failure)	Type A Trips: 1 MIL: Yes
Pressure Control (PC) Solenoid Control Circuit High Voltage	P0963	This DTC detects a short to high in thePressure Control Solenoid circuit.	Input A/D value of Pressure Control Solenoid	>= 1000(0.257V)	DS_ACTIVE_V**(*2)** Not in emergency mode**(see the attachment#3)**	TRUE	1 failure 500ms continuously(per 1 failure)	Type A Trips: 1 MIL: Yes
Shift Solenoid (SS) 1 Control Circuit Low Voltage	P0973	This DTC detects a short to ground in the Shift Solenoid 1 circuit.	Shift Solenoid 1 Voltage (when TCM command “ON” signal (12V) to shift solenoid 1.)	=0V (“OFF” signal)	DS_ACTIVE_V**(*2)** Not in emergency mode**(see the attachment#3)** Time after Shift solenoid output changed	TRUE 25ms	1 failure 500ms continuously(per 1 failure)	Type A Trips: 1 MIL: Yes
Shift Solenoid (SS) 1 Control Circuit High Voltage	P0974	This DTC detects a short to high or open in the Shift Solenoid 1 circuit.	Shift Solenoid 1 Voltage (when TCM command “OFF” signal (0V) to shift solenoid 1.)	=12V (“ON” signal)	DS_ACTIVE_V**(*2)** Not in emergency mode**(see the attachment#3)** Time after Shift solenoid output changed	TRUE 25ms	1 failure 500ms continuously(per 1 failure)	Type A Trips: 1 MIL: Yes
Shift Solenoid (SS) 2 Control Circuit Low Voltage	P0976	This DTC detects a short to ground in the Shift Solenoid 2 circuit.	Shift Solenoid 2 Voltage (when TCM command “ON” signal (12V) to shift solenoid 2.)	=0V (“OFF” signal)	DS_ACTIVE_V**(*2)** Not in emergency mode**(see the attachment#3)** Time after Shift solenoid output changed	TRUE 25ms	1 failure 500ms continuously(per 1 failure)	Type A Trips: 1 MIL: Yes

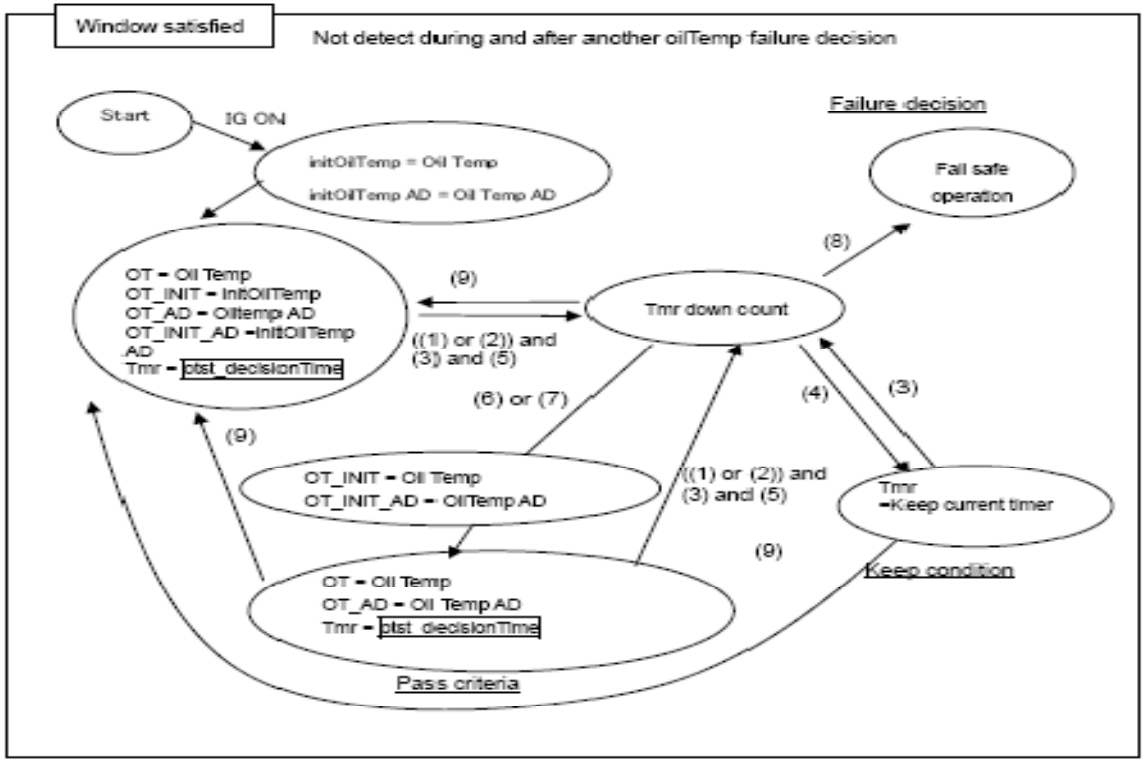
COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
Shift Solenoid (SS) 2 Control Circuit High Voltage	P0977	This DTC detects a short to high or open in the Shift Solenoid 2 circuit.	Shift Solenoid 2 Voltage (when TCM command “OFF” signal (0V) to shift solenoid 2.)	=12V (“ON” signal)	DS_ACTIVE_V**(*2)** Not in emergency mode**(see the attachment#3)** Time after Shift solenoid output changed	TRUE 25ms	1 failure 500ms continuously(per 1 failure)	Type A Trips: 1 MIL: Yes
IG Voltage	P2533	This DTC checks the Ignition Voltage circuit for electrical integrity.	Ignition Circuit Voltage	=0V	Not in emergency mode**(see the attachment#3)** No active DTCs Engine Speed Battery voltage	U0001 , U0100 U0401(Engine Speed Signal Error) > 400 rpm. > 9 V	20 failures 1000 ms continuously(per 1 failure)	Type A Trips: 1 MIL: Yes
Ignition Accessory Switch Circuit	P2536	ACC line OPEN	Acc Voltage	TCM detect ACC input OFF	10.2 V < Battery voltage < 15.5 V AND Engine revolution > 400rpm and no failure detection AND IG ON for 2.0 sec continuously. CAN Bus Off failure/ CAN No BCM failure = Not failure condition Power Mode Master Accessory Terminal Status (ID1F1) is $1(Active) TCM detects IG input ON	TCM detect ACC input ON for 20 sec continuously	Detection : 1000 ms continuously Decision : 20 failures	Special Type C MIL: NO
Torque Converter Clutch (TCC) Enable Solenoid Control Circuit Low Voltage	P2769	This DTC detects a short to ground in the TCC Enable Solenoid Control circuit.	TCC Enable Solenoid Voltage (when TCM command “ON” signal (12V) to TCC Enable Solenoid.)	=0V (“OFF” signal)	DS_ACTIVE_V**(*2)** Not in emergency mode**(see the attachment#3)** Time after TCC Enable solenoid output changed	TRUE 25ms	1 failure 500ms continuously(per 1 failure)	Type B Trips: 2 MIL: Yes
Torque Converter Clutch (TCC) Enable Solenoid Control Circuit High Voltage	P2770	This DTC detects a short to high or open in the TCC Enable	TCC Enable Solenoid Voltage (when TCM command “OFF”	=12V (“ON” signal)	DS_ACTIVE_V**(*2)**	TRUE	1 failure 500ms continuously(per 1 failure)	Type B Trips: 2 MIL: Yes

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
		or open in the TCC Enable Solenoid Control circuit.	signal (0V) to TCC Enable Solenoid.)	=12V ("ON" signal)	Not in emergency mode**(see the attachment#3)** Time after TCC Enable solenoid output changed	25ms		
High Speed CAN Communication Bus	U0001	This DTC monitors for BUS OFF condition	BUS ON/OFF state from CAN Controller	="BUS OFF"	DS_ACTIVE_ACC**(*3)**	TRUE	7 failures (Bus OFF from CAN Controller.)	Type A Trips: 1 MIL: Yes
Lost Communication with ECM	U0100	This DTC monitors for a loss of communication with ECM	Message(ID 0x0C9 or 0x191 or 0x1A1 or 0x4C1) is not received from ECM for this many seconds	200ms continuously	DS_ACTIVE_ACC**(*3)** No active DTC	TRUE U0001	10 failures 200ms continuously(per 1 failure)	Type A Trips: 1 MIL: Yes
Lost Communication with Body Control Module (IPC)	U0140	Detects that CAN serial data communication has been lost with the IPC	IPC frame (ID 0x0F1, 0x1F1, 0x1F3)	TCM cannot detect IPC frame (ID 0x0F1, 0x1F1, 0x1F3)	10.2 V < Battery voltage < 15.5 V for 2.0 sec continuously. CAN Bus Off failure = Not failure condition	TCM confirms that sending message to IPC frame (ID 0x0F1, 0x1F1, 0x1F3) for 2 seconds.	Detection : 200 ms continuously Decision : 10 failures	Special Type C MIL: NO
Invalid Data Received From ECM	U0401	This DTC monitors for Invalid Signal of Engine Speed from ECM	Validity of Engine Speed Status (ID 0x0C9)	Invalid Signal	DS_ACTIVE_V**(*2)** No active DTCs	TRUE U0001, U0100	10 failures 200 ms continuously(per 1 failure)	Special Type C MIL: NO
		This DTC monitors for Invalid Signal of Engine Torque from ECM	Validity of Engine Airflow Steady State Torque Validity (ID 0x191)	Invalid Signal	DS_ACTIVE_V**(*2)** No active DTCs	TRUE U0001, U0100	10 failures 200 ms continuously(per 1 failure)	
		This DTC monitors for Invalid Signal of Acceleratorv Effective Position from ECM	Validity of Accelerator Effective Position Validity (ID 0x191)	Invalid Signal	DS_ACTIVE_V**(*2)** No active DTCs	TRUE U0001, U0100	10 failures 200 ms continuously(per 1 failure)	
		This DTC monitors for Invalid Signal of Engine Coolant Temperature from ECM	Validity of Engine Coolant Temperature Validity (ID 0x4C1)	Invalid Signal	DS_ACTIVE_V**(*2)** No active DTCs	TRUE U0001, U0100	10 failures 1500 ms continuously(per 1 failure)	
Invalid Data Received From	U0422				DS_ACTIVE_V**(*2)**	TRUE	10 failures	Special Type

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
BCM(IPC)		This DTC monitors for Invalid signal of Brake Signal from IPC	Brake Pedal Initial Travel Achieved Validity ID 0x0F1	Invalid Signal	No active DTCs	U0001, U0140	200 ms continuously(per 1 failure)	C MIL: NO

GMDATA-----Attachment#1 - TFT

DETECTION and PASS CRITERIA of Transmission Fluid Temperature (TFT) Sensor Performance



Condition

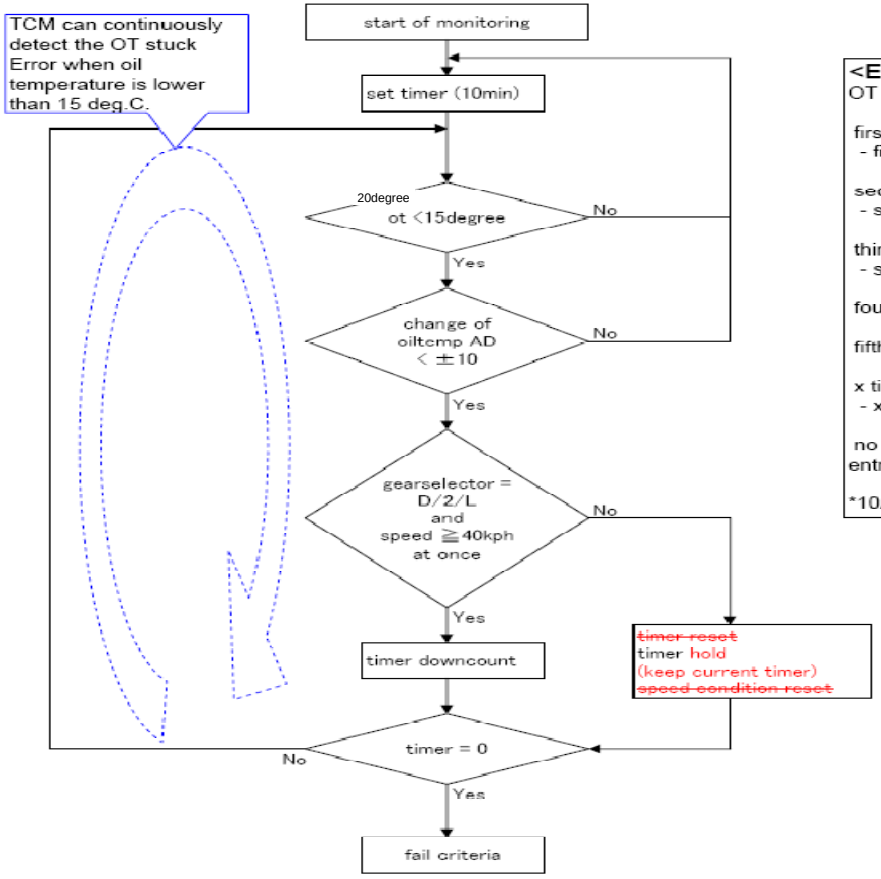
(1)	Oil Temperature < ~~15~~20 °C
(2)	Oil Temperature init < ~~15~~20 °C
(3)	D range or 2 range or L range
(4)	P range or R range or N range
(5)	Vehicle Speed >= 40 km/h at 1 time
(6)	(Oil Temperature AD value − Old Oil Temperature AD value) > 10(0.05V) (AD Value)
(7)	(Oil Temperature AD value − Oil Temperature init AD value) > 10(0.05V) (AD Value)
(8)	Timer = 0 sec
(9)	Detection window is not satisfied

ptst_decisionTime : 10min

GMDATA-----Attachment#1 - TFT

DETECTION and PASS CRITERIA of Transmission Fluid Temperature (TFT) Sensor Performance

Flowchart of detection specification of oil temperature failure (STUCK)



<Example>
OT at start -10 deg.C*

first check while OT increase from -10 deg.C - to -7 deg.C
- first time stuck check performed P0711

second check while OT increase from -4 deg.C - to -1 deg.C
- second time stuck check performed P0711

third check while OT increase from -1 deg.C - to 2 deg.C
- second time stuck check performed P0711

fourth check....

fifth check....

x times check while OT increase from y°C - to Z °C
- x time stuck check performed P0711

no increase of OT because of stuck to < 15°C -> P-Code entry

*10AD is about 2 to 5 deg.C

Attachment#2.1 - Shift Solenoid

*CONDITION OF SHIFT SOLENOID MALFUNCTION

		Gear position (Sol. Output)	Throttle openings (%) *3	Vehicle speed (km/h) *3		Prhbt. Time *1, *3 (sec)	Detection Condition of Gear Position *1	Detection Time *3 (sec)	Decision counter *2*3
				Min	Max				
Shift Solenoid 1	Stuck on Failure	3	3 <= Th <= 27 (500 <= Ni <= 6000)	20	-	2	2nd Gear	2	1
	Stuck on Normal l*4	3	3 <= Th <= 27 (500 <= Ni <= 6000)				3rd Gear	1	1
	Stuck off Failure	2	3 <= Th <= 27 (500 <= Ni <= 6000)				3rd Gear	2	1
	Stuck off Normal l*4	2	3 <= Th <= 27 (500 <= Ni <= 6000)				2nd Gear	1	1
Shift Solenoid 2	Stuck on Failure	3	3 <= Th <= 27 (500 <= Ni <= 6000)				4th Gear	2	1
	Stuck on Normal l*4	3	3 <= Th <= 27 (500 <= Ni <= 6000)				3rd Gear	1	1
	Stuck off Failure	4	3 <= Th <= 27 (500 <= Ni <= 6000)				3rd Gear	5	1
	Stuck off Normal l*4	4	3 <= Th <= 27 (500 <= Ni <= 6000)				4th Gear	1	1

Gear Position	Gear Ratio	Detection Area of	
		Minimum	Maximum
1st Gear	2.875	2.674	3.076
2nd Gear	1.568	1.458	1.678
3rd Gear	1	0.93	1.07
4th Gear	0.697	0.648	0.746

*[1] The prohibit time is started when shift changes.

*[2] This counter can be increment after shifting.

*[3] These data is not decided.
There is a difference of these data is each vehicle.

*[4] Pass Criteria is satisfied Both Stuck on Normal and Stuck off Normal.

Attachment#2.2 - Shift Solenoid

*CONDITION OF TCC SOLENOID STUCK ON/OFF

		Gear position (Sol. Output)	E/G torque (Nm) *3	T/M input speed (rpm) *3		Prhbt time *1 (sec)	Relationship of Ne and Ni	Detection time*3 (sec)	Decision counter *3
				Min	Max				
SL	Stuck on Failure	3 L-upOFF	50 <= Te <= 100	925	6000	2	|Ne-Ni| < 50rpm	1	12
	Stuck on Normal*4	3 L-upOFF					|Ne-Ni| > 100rpm	1	1
	Stuck off Failure	4 L-upON	55 <= Te <= 100	150	4000		|Ne-Ni| > 100rpm	2	6
	Stuck off Normal*4	4 L-upON		150	4000		|Ne-Ni| < 50rpm	1.2	1

*1 The prohibit time is started when shift change or L-up full on.
*2 This counter can be increment after shifting.
*3 These data is not decided.
*4 Pass Criteria is satisfied Both Stuck on Normal and Stuck off Normal.

E/G torque: Drivers Torque

Attachment#3 - Emergency Mode

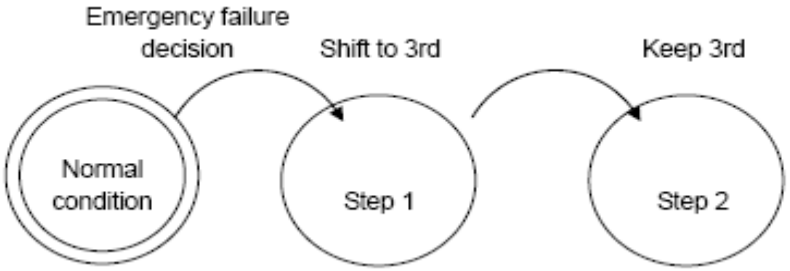
*Emergency mode

: TCM command "OFF" signal to all solenoid(as follows).

1:Shift Solenoid 1
2:Shift Solenoid 2
3:Timing Solenoid
4:Torque Converter Clutch Enable Solenoid
5:Pressure Control Solenoid

: DTCs that take Emergency mode like Limp home mode as "fail safe" are;

P0974	P0973
P0977	P0976
P0788	P0787
P0963	P0962
P0601	
P2533	



Normal	Emergency mode	Emergency mode
Reverse	Reverse	
1st gear	L, 2, D range 3rd gear Solenoid cut off	
2nd gear		
3rd gear		
4th gear		